LAPSANA COMMUNIS (ASTERACEAE) NEW FOR TEXAS AND NOTES ON INVASIVE EXOTICS

ROBERT J. O'KENNON,[1] THEODORE M. BARKLEY,[1] GEORGE M. DIGGS, JR.,[1, 2] BARNEY LIPSCOMB[1]

[1]*Botanical Research Institute of Texas*
509 Pecan Street
Fort Worth, TX 76102, U.S.A.

[2]*Department of Biology*
Austin College
Sherman, TX 75090, U.S.A.

okennon@brit.org, barkley@brit.org
gdiggs@austinc.edu, barney@brit.org

Lapsana communis L., nipplewort or succory dock-cress, is a native of Europe (Vuilleumier 1973; Sell 1976; Stebbins 1993) naturalized in a variety of localities in the United States. It is usually described as a weed inhabiting roadsides, disturbed places, and waste areas, often in shady situations. A genus of nine species, *Lapsana* (Asteraceae: Lactuceae) is native to the extratropical regions of Europe, Asia, and northern Africa. The only truly weedy member of the genus, *L. communis* is also adventive in at least Africa, Polynesia, the West Indies, and South America (Vuilleumier 1973). In North America the species is known from Ontario, Quebec, and the northeast U.S. south to North Carolina and west to North Dakota, Missouri and Arkansas; it is also found from British Columbia south to Oregon and California (Robinson & Fernald 1908; Britton & Brown 1898, 1913; Fernald 1950; Gleason 1952; Gleason & Cronquist 1963, 1991; Steyermark 1963; Radford et al. 1968; Strausbaugh & Core 1978; Cronquist 1980; Barkley 1986; Smith 1988; Stebbins 1993). Voss (1996), for example, cited the species for Michigan, indicating it had been found sparingly in the past and largely overlooked until very recently, with it now being very abundant in some localities. *Lapsana communis* was not reported from Oklahoma (Taylor & Taylor 1994); however, it was reported from three western counties of Arkansas (Smith 1988). Despite this proximity, the species has not been previously reported from Texas (Correll & Johnston 1970; Stanford 1976; Hatch et al. 1990; Jones et al. 1997; Diggs et al. 1999).

A collection made in 1999 in Fort Worth (Tarrant County) is apparently the first documented occurrence of this species for Texas. The identification

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was determined by Theodore M. Barkley of BRIT (formerly, Kansas State University).

Voucher specimens: **TEXAS. Tarrant Co.**: shady area in landscape, 301 Crestwood, Fort Worth, 25 Jun 1999, *O'Kennon 14377* (BRIT, TEX).

At the collection locality a single individual was observed as a landscape weed. The plant was 70 cm tall and 25 cm wide. This yard has incurred a large number of weedy species after a truckload of compost, from a large compost operation run by a local nursery, was dumped and spread in 1997. Seeds of various weedy species, including *Lactuca saligna* (O'Kennon et al. 1998a), *Plantago coronopus* (O'Kennon et al. 1998b), and *Lapsana communis*, were apparently introduced in this manner. Other populations of *Lapsana* have not been found in North Central Texas, and it is unclear whether the species will become more widely established. However, it would not be surprising that the species has been spread to other landscapes by the same method.

The generic name *Lapsana* is derived from Greek, *lapsane* or *lampsane*, a name given by Dioscorides to a vegetable, apparently a species of *Raphanus* (Vuilleumier 1973). According to Vuilleumier (1973), Bentham and Hooker (1873) allied *Lapsana* with *Apogon* Ell. (now included in *Krigia* L.), but Stebbins (1953) considered *Lapsana* (because of its lack of a pappus) to be a specialized offshoot of the *Youngia-Ixeris* line of the Crepidinae. Jeffrey (1966) indicated a similar relationship, putting *Lapsana* in his "*Crepis*-series" with *Crepis*, *Ixeris*, and *Youngia*. Small (1917, cited in Vuilleumier 1973) reported that when stamens of this species are touched, the filament nearest the stimulus contracts and the entire anther tube faces the visitor as the style pushes out the pollen toward it. Vuilleumier (1973) noted that the milky juice of the plant is soothing to sensitive skin, particularly on the nipples of nursing mothers (hence the common name nipplewort).

Lapsana communis (Fig. 1), the flowers of which resemble a *Lactuca*, *Crepis*, *Hieracium*, or *Youngia*, can be recognized by the following description (modified from Cronquist 1980 and Barkley 1986); the absence of a pappus is particularly noteworthy. Erect, branching to single-stemmed annual herb [acting as a biennial in our area], 1.5–10(–15) dm tall, hirsute to glabrescent, with milky juice; leaves alternate, petiolate, thin, ovate to subround, obtuse to rounded, variously dentate, or the lowermost lyrate [somewhat resembling basal leaves of members of the mustard family], 2.5–10 cm long, to 7 cm wide, progressively shorter-petiolate upward, the uppermost blades distinctly narrowed; heads few–numerous in a corymb-like to somewhat elongate panicle-like capitulescence; involucre 5–8 mm tall, cylindric to campanulate-spreading; principal phyllaries ca 8, subequal, uniseriate, subtended by minute calyculate bracts; receptacle naked; florets 8–15 per head, all ligulate and fertile, corollas yellow; achenes 3–5 mm long, ± terete to weakly flattened,

curved, glabrous, with numerous nerves (ca. 18–30); pappus none; (n = 6, 7, 8). Jun–Sep. The accompanying illustration is reprinted from Gleason (1952) and Strausbaugh and Core (1978) with the permission of the publishers.

NOTES ON INVASIVE EXOTICS

Lapsana communis is one of a continuing string of introduced species (defined here as those originating outside the United States) introduced into the flora of Texas. These taxa are variously referred to as alien, exotic, or foreign. In a recent floristic study on North Central Texas (Diggs et al. 1999), it was determined that 17.7% (or 394 species) of the flora consisted of such introduced species. This is roughly what would be expected based on data from other parts of the United States. For example, the level of exotic species in the northeastern states has been estimated at 22% (Elias 1977) and 20–30% (Stuckey & Barkley (1993). Comparable figures for introduced species for other states include California (17.5%) (Rejmánek & Randall 1994), Colorado (16%), Iowa (22.3%), Kansas (17.4%), and North Dakota (15%) (Stuckey & Barkley 1993). Considering how recently North Central Texas was settled and converted from almost totally native habitat, the 17.7% figure is quite striking.

Some of these exotics are extremely invasive taxa capable of becoming serious agricultural pests or of destroying native habitats. Particularly problematic are those that aggressively invade native ecosystems, reproduce extensively, and occupy the small remaining areas of natural habitat used by indigenous species. A few of the many problematic species curtently spreading in North Central Texas include *Carduus nutans* L. subsp. *macrocephalus* (Desf.) Nyman (musk-thistle or nodding-thistle), *Hydrilla verticillata* (L.f.) Royle (waterthyme), *Pueraria montana* (Lour.) Merr. var. *lobata* (Willd.) Maesen & Almeida (kudzu), and *Scabiosa atropurpurea* L. (pincushions, sweet scabious). *Scabiosa*, for example, is now known from at least seven counties (Collin, Dallas, Fannin, Grayson, Hopkins, Hunt, and Lamar) and will almost surely be found in many more. In Collin County, it lines some roadsides (e.g., Hwy. 75) and virtually forms monocultures. Given the ease with which it moves into adjacent fields, there is real concern that sweet scabious may be able to invade native prairie remnants. Likewise, native habitats (e.g., forests, prairies) are being invaded by a host of other exotics, including *Lonicera japonica* Thunb. (Japanese honeysuckle), *Ligustrum* species (privets), *Sorghum halapense* (L.) Pers. (Johnson grass), and *Festuca arundinacea* Schreb., (tall fescue).

In many areas, a high percentage of the plants encountered will be of introduced species. Given the speed with which exotics have invaded, and the percentage of habitat they now occupy, after habitat destruction, inva-



FIG. 1. Habit of *Lapsana communis* (Britton & Brown 1913, with permission, New York Botanical Garden, and Strausbaugh and Core (1978) with permission Seneca Books, Inc.).

sion by exotics may be the most serious threat facing native plants in North Central Texas (Diggs et al. 1999). Problematically, this is not a short-term concern. According to Cronk and Fuller (1995), the introduction of exotics is "...a lasting threat because when exploitation or pollution stops, ecosystems often begin to recover. However, when the introduction of alien organisms stops the existing aliens do not disappear; in contrast they sometimes continue to spread and consolidate, and so may be called a more pervasive threat." Unfortunately, there is a continuing lack of recognition of the problem. For example, the Federal noxious weed *Salvinia molesta* Mitchell has recently been found in abundance at Toledo Bend Reservoir, on the Texas-Louisiana border (Jacono 1999). This native of Brazil (Forno 1983) can grow rapidly and cover the surface of lakes and streams, and the floating mats shade and crowd out native plants. Additionally, the thick mats reduce oxygen content, degrade water quality, and can cause physical problems including hindering boats and clogging water intakes (Jacono 1998). In Texas, it is considered a "harmful or potentially harmful exotic plant" and it is illegal to release, import, sell, purchase, propagate, or possess this species in the state (Harvey 1998). Nonetheless, likely sources for the introduction are local nurseries

found distributing the species as an ornamental water garden plant (Randy Helton, pers. comm., in Jacono 1999).

Another example, *Lythrum salicaria* L. (purple loosestrife), can also be found for sale in Texas nurseries and is even planted on local college campuses. In some parts of the northeastern United States, *L. salicaria* aggressively invades native marshlands eliminating native species. Dense stands covering thousands of acres are sometimes formed with even tenacious natives such as *Typha* (cat-tail) species being excluded. Purple loosestrife is often cited as one of the most detrimental cases of habitat alteration by an exotic species in the U.S. It was introduced in New England in the early 1800s and by 1995 was known in every state but Florida. Because of its potential as a pest, it has been declared a noxious weed in several states with laws banning its distribution and cultivation; this species should not be planted (Stuckey 1980; Graham 1986; Yatskievych & Spellenberg 1993; Flack & Furlow 1996); http://plants.usda.gov/.

A final example for Texas is *Sapium sebiferum* (L.) Roxb., (Chinese tallow tree, vegetable tallow tree). This rapidly growing tree was introduced into the U.S. in South Carolina in the late 1770s and is now widespread; it displaces native vegetation and is considered one of the most serious invasive exotics in the U.S. It apparently releases compounds that modify soil chemistry and affect the establishment of native species (Flack & Furlow 1996). In Texas, it is extremely problematic in invading areas of native coastal prairie and East Texas forest (e.g., Big Thicket National Preserve). While the seriousness of the threat of exotics is still significantly underrealized, at least some increase in awareness is occurring. Examples of recent articles in the popular press on exotics include one in the *Nature Conservancy Magazine* (Flack & Furlow 1996) and a just published report in Scientific American discussing the serious invasion of *Lygodium microphyullum* (Cavanilles) R. Brown (Old World climbing fern) in Florida and the threat it poses to the Everglades (Mirsky 1999).

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